



# N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%)

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 24/03/2011

Revision date: 21/07/2016

Supersedes: 14/09/2012

Version: 3.0

DLM-1670

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Product form : Substance  
Substance name : N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%)  
EC Index No : 616-001-00-X (Unlabeled)  
EC No : 200-679-5 (Unlabeled)  
CAS No : 2914-27-4  
Product code : DLM-1670  
Formula : (CH<sub>3</sub>)<sub>2</sub>NCDO  
Synonyms : DMF

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### 1.2.1. Relevant identified uses

Main use category : Professional use  
Industrial/Professional use spec : For professional use only

#### 1.2.2. Uses advised against

No additional information available

### 1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.  
50 Frontage Road  
Andover, MA 01810  
USA

USA: 1-800-322-1174 Int: 1-978-749-8000  
[cilsales@isotope.com](mailto:cilsales@isotope.com) [www.isotope.com](http://www.isotope.com)

### Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)  
International: 1-703-741-5970 (24 hours)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 3 H226  
Acute Tox. 4 (Dermal) H312  
Acute Tox. 4 (Inhalation) H332  
Eye Irrit. 2 H319  
Repr. 1A H360

Full text of hazard classes and H-statements : see section 16

#### Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

R10  
Xn; R20/21  
Repr.Cat.2; R60  
Repr.Cat.2; R61  
Xi; R36

Full text of R-phrases: see section 16

#### GHS-US classification

Flam. Liq. 3 H226  
Acute Tox. 4 (Dermal) H312  
Acute Tox. 4 (Inhalation) H332  
Eye Irrit. 2A H319  
Repr. 1A H360

Full text of H statements : see section 16

# N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%)

DLM-1670

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### Adverse physicochemical, human health and environmental effects

blood. cardiovascular system. central nervous system. kidneys. liver.

## 2.2. Label elements

### Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



Signal word (CLP)

: Danger

Hazard statements (CLP)

: H226 - Flammable liquid and vapor  
H312+H332 - Harmful in contact with skin or if inhaled  
H319 - Causes serious eye irritation  
H360 - May damage fertility (in contact with skin, if inhaled, if swallowed)

Precautionary statements (CLP)

: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
P233 - Keep container tightly closed  
P240 - Ground/bond container and receiving equipment  
P241 - Use explosion-proof electrical, lighting, ventilating equipment  
P261 - Avoid breathing dust, fume, gas, mist, spray, vapors  
P264 - Wash hands, forearms and face thoroughly after handling  
P271 - Use only outdoors or in a well-ventilated area  
P280 - Wear eye protection, face protection, protective clothing, protective gloves

### GHS-US labeling

Hazard pictograms (GHS-US)



Signal word (GHS-US)

: Danger

Hazard statements (GHS-US)

: H226 - Flammable liquid and vapor  
H312+H332 - Harmful in contact with skin or if inhaled  
H319 - Causes serious eye irritation  
H360 - {0|message=May damage fertility or the unborn child <state specific effect if known>|default=May damage fertility or the unborn child|filter=(\_)?H\_360.+} (Dermal, Inhalation, oral) (Dermal, Inhalation, oral)

Precautionary statements (GHS-US)

: P201 - Obtain special instructions before use  
P202 - Do not handle until all safety precautions have been read and understood  
P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking  
P233 - Keep container tightly closed  
P240 - Ground/Bond container and receiving equipment  
P241 - Use explosion-proof electrical, lighting, ventilating equipment  
P242 - Use only non-sparking tools  
P243 - Take precautionary measures against static discharge  
P261 - Avoid breathing dust, fume, gas, mist, spray, vapors  
P264 - Wash hands, forearms and face thoroughly after handling  
P271 - Use only outdoors or in a well-ventilated area  
P280 - Wear eye protection, face protection, protective clothing, protective gloves  
P302+P352 - If on skin: Wash with plenty of water  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P308+P313 - If exposed or concerned: Get medical advice/attention  
P312 - Call a doctor, a POISON CENTER if you feel unwell  
P321 - Specific treatment (see Hazardous component(s) for labeling on this label)  
P337+P313 - If eye irritation persists: Get medical advice/attention  
P362+P364 - Take off contaminated clothing and wash it before reuse  
P370+P378 - In case of fire: Use alcohol resistant foam, carbon dioxide (CO2), dry extinguishing powder to extinguish  
P403+P235 - Store in a well-ventilated place. Keep cool

# N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%)

DLM-1670

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

P405 - Store locked up  
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Name	Product identifier	%	Classification according to Directive 67/548/EEC
N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%)	(CAS No) 2914-27-4 (EC No) 200-679-5 (Unlabeled) (EC Index No) 616-001-00-X (Unlabeled)	100	R10 Xn; R20/21 Repr.Cat.2; R60 Repr.Cat.2; R61 Xi; R36

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%)	(CAS No) 2914-27-4 (EC No) 200-679-5 (Unlabeled) (EC Index No) 616-001-00-X (Unlabeled)	100	Flam. Liq. 3, H226 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Eye Irrit. 2, H319 Repr. 1A, H360

Full text of R- and H- phrases: see section 16

Name	Product identifier	%	GHS-US classification
N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%) (Main constituent)	(CAS No) 2914-27-4	100	Flam. Liq. 3, H226 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Eye Irrit. 2A, H319 Repr. 1A, H360

Full text of H-phrases: see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general	: Evacuate danger area. IF exposed or concerned: Get medical advice/attention.
First-aid measures after inhalation	: When symptoms occur: go into open air and ventilate suspected area. If not breathing, give artificial respiration. Get medical advice/attention.
First-aid measures after skin contact	: Wash with plenty of soap and water. Get immediate medical advice/attention. Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a poison center or doctor/physician. Specific measures (see Hazard pictograms (CLP) on this label). Wash with plenty of soap and water. Wash contaminated clothing before reuse.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get medical advice/attention.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation	: Harmful if inhaled. May cause respiratory irritation.
Symptoms/injuries after skin contact	: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Harmful in contact with skin.
Symptoms/injuries after eye contact	: Causes serious eye irritation.
Symptoms/injuries after ingestion	: May be harmful if swallowed.

### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Water spray, dry chemical powder, alcohol-resistant foam, carbon dioxide (CO2).

### 5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable liquid and vapor.  
Explosion hazard : May form flammable/explosive vapor-air mixture.

# N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%)

DLM-1670

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Reactivity : Flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

### 5.3. Advice for firefighters

Firefighting instructions : Fight fire with normal precautions from a reasonable distance. Wear a self contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Wear recommended personal protective equipment.

Other information : Use water spray to cool exposed surfaces.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : No flames, no sparks. Eliminate all sources of ignition. Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking.

#### 6.1.1. For non-emergency personnel

Emergency procedures : Wear respiratory protection. Avoid breathing vapors, mist, gas. Ensure adequate air ventilation. Evacuate unnecessary personnel. No flames, no sparks. Eliminate all sources of ignition. Special attention should be given to low areas/pits where flammable vapors can accumulate. Provide adequate ventilation to minimize dust and/or vapor concentrations.

#### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Do not allow to enter drains or water courses. Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

For containment : Collect spillage. Clean up any spills as soon as possible, using an absorbent material to collect it. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal. For large spills, confine the spill in a dike and charge it with wet sand or earth for subsequent safe disposal.

Methods for cleaning up : This material and its container must be disposed of in a safe way, and as per local legislation.

Other information : Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Additional hazards when processed : Avoid all eye and skin contact and do not breathe vapor and mist. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Handle empty containers with care because residual vapors are flammable.

Precautions for safe handling : Provide adequate ventilation to minimize dust and/or vapor concentrations. No open flames. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Handle in accordance with good industrial hygiene and safety practice.

### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Store in a well-ventilated place. Keep container tightly closed. Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof Lighting equipment, ventilating equipment.

Storage conditions : Store at room temperature away from light and moisture.

Incompatible materials : Heat sources.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%) (2914-27-4)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	10.00000000 ppm Liver damage. Substances for which there is a Biological Exposure Index or Indices. Danger of cutaneous absorption.
USA NIOSH	NIOSH REL (TWA) (ppm)	10 ppm Potential for dermal absorption

# N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%)

DLM-1670

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%) (2914-27-4)		
USA OSHA	OSHA PEL (TWA) (ppm)	10 ppm Skin designation. The value in mg/m3 is approximate.

N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%) (2914-27-4)	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	26.3 mg/kg bodyweight/day
Acute - systemic effects, inhalation	30 mg/m <sup>3</sup>
Acute - local effects, inhalation	15 mg/m <sup>3</sup>
Long-term - systemic effects, dermal	3.31 mg/kg bodyweight/day
Long-term - local effects, inhalation	15 mg/m <sup>3</sup>
PNEC (Water)	
PNEC aqua (freshwater)	30 mg/l
PNEC aqua (marine water)	3 mg/kg
PNEC (Sediment)	
PNEC sediment (freshwater)	25.05 mg/kg
PNEC (Soil)	
PNEC soil	16.235 mg/kg dwt

### 8.2. Exposure controls

Appropriate engineering controls : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

Personal protective equipment : Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



Materials for protective clothing : Wear suitable protective clothing and gloves.

Hand protection : Wear suitable protective clothing and gloves.

Eye protection : Wear eye protection. Chemical goggles or face shield with safety glasses.

Skin and body protection : Wear suitable protective clothing, gloves and eye/face protection.

Respiratory protection : In case of inadequate ventilation wear respiratory protection. Approved supplied air respirator.

Environmental exposure controls : Avoid release to the environment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Molecular mass	: 74.1 g/mol (Labeled)
Color	: Colorless.
Odor	: Amine-like.
Odor threshold	: No data available
pH	: 6.7
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: -61 °C (-78 °F)
Freezing point	: No data available
Boiling point	: 153 °C (307 °F)
Flash point	: 58 °C (136 °F) - closed cup
Auto-ignition temperature	: 445 °C (833 °F)
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: 3.6 hPa (2.70 mmHg) at 20 °C (68 °F)
Relative vapor density at 20 °C	: 2.52 - (Air = 1.0)
Relative density	: No data available
Specific gravity / density	: 0.944 g/ml at 20 °C (68 °F)
Solubility	: Water: Completely miscible
Log Pow	: -1.01
Log Kow	: No data available
Viscosity, kinematic	: No data available

# N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%)

DLM-1670

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion limits	: 2.2 - 15.2 % (V)

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

### 10.2. Chemical stability

Stable if stored under recommended conditions.

### 10.3. Possibility of hazardous reactions

No additional information available

### 10.4. Conditions to avoid

Heat. Open flame. Sparks. Overheating. Direct sunlight.

### 10.5. Incompatible materials

Strong oxidizing agents.

### 10.6. Hazardous decomposition products

Carbon oxides (CO, CO<sub>2</sub>). Nitrogen oxides.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Dermal: Harmful in contact with skin. Inhalation: Harmful if inhaled.

N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%) (2914-27-4)	
LD50 oral rat	2800 mg/kg
LD50 dermal rabbit	1500 mg/kg
LC50 inhalation rat (mg/l)	9 - 15 mg/l 4 h
ATE CLP (oral)	2800.000 mg/kg body weight
ATE CLP (dermal)	1500.000 mg/kg body weight
ATE CLP (gases)	4500.000 ppmV/4h
ATE CLP (vapors)	9.000 mg/l/4h
ATE CLP (dust, mist)	1.500 mg/l/4h

Skin corrosion/irritation	: Not classified Skin - Human - Mild skin irritation - 24 h pH: 6.7
Serious eye damage/irritation	: Causes serious eye irritation. Eyes - rabbit - Moderate eye irritation pH: 6.7
Respiratory or skin sensitization	: Not available No data available
Germ cell mutagenicity	: Mouse - lymphocyte - Mutation in mammalian somatic cells.
Carcinogenicity	: This product is or contains a component that is not classifiable as to its carcinogenicity on its IARC, ACGIH, NTP, or EPA classification.
Reproductive toxicity	: May cause congenital malformation in the fetus.
Specific target organ toxicity – single exposure	: Not classified No data available
Specific target organ toxicity – repeated exposure	: Not classified No data available
Aspiration hazard	: Not classified
Potential adverse human health effects and symptoms	: Warning: intolerance for alcohol can occur up to 4 days after dimethylformamide exposure. N,N-dimethylformamide is considered to be a potent liver toxin. Vomiting, Diarrhoea, Abdominal pain. The chemical, physical, and toxicological properties have not been thoroughly investigated. This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. Harmful in contact with skin.

# N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%)

DLM-1670

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Symptoms/injuries after inhalation	: Harmful if inhaled. May cause respiratory irritation.
Symptoms/injuries after skin contact	: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Harmful in contact with skin.
Symptoms/injuries after eye contact	: Causes serious eye irritation.
Symptoms/injuries after ingestion	: May be harmful if swallowed.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%) (2914-27-4)	
LC50 fish 1	9000 - 13000 mg/l LC50 - Oncorhynchus mykiss (rainbow trout)
LC50 other aquatic organisms 1	6700 - 7500 mg/l LC50 - Lepomis macrochirus (Bluegill) - 96 h
EC50 Daphnia 1	9600 - 13100 EC50 - Daphnia magna (Water flea) - 48 h
EC50 other aquatic organisms 1	15700 mg/l EC50 - Daphnia magna (Water flea) - 48 h
LC50 fish 2	10400 - 10800 LC50 - Pimephales promelas (fathead minnow) - 96 h
LC50 other aquatic organisms 2	9800 mg/l LC50 - Oncorhynchus mykiss (rainbow trout) - 96 h

### 12.2. Persistence and degradability

N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%) (2914-27-4)	
Persistence and degradability	Readily biodegradable.
Biodegradation	> 90 %

### 12.3. Bioaccumulative potential

N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%) (2914-27-4)	
Log Pow	-1.01

### 12.4. Mobility in soil

N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%) (2914-27-4)	
Ecology - soil	Not available.

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Regional legislation (waste)	: Waste materials should be disposed of under conditions which meet Federal, State, and Local environmental control regulations.
Product/Packaging disposal recommendations:	: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Additional information	: Handle empty containers with care because residual vapors are flammable.
Ecology - waste materials	: Dispose of as unused product.

## SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

### 14.1. UN number

UN-No.(DOT)	: 2265
DOT NA no.	UN2265

### 14.2. UN proper shipping name

Proper Shipping Name (DOT)	: N,N-Dimethylformamide
Class (DOT)	: 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Hazard labels (DOT)	: 3 - Flammable liquid



Packing group (DOT)	: III - Minor Danger
---------------------	----------------------

# N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%)

DLM-1670

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

DOT Special Provisions (49 CFR 172.102)	: B1 - If the material has a flash point at or above 38 C (100 F) and below 93 C (200 F), then the bulk packaging requirements of 173.241 of this subchapter are applicable. If the material has a flash point of less than 38 C (100 F), then the bulk packaging requirements of 173.242 of this subchapter are applicable. IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T2 - 1.5 178.274(d)(2) Normal..... 178.275(d)(3) TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 203
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
DOT RQ	: 100 lbs
Marine pollutant	: No

### 14.3. Additional information

Other information : No supplementary information available.

#### Overland transport

Packing group (ADR)	: III
Class (ADR)	: 3 - Flammable liquid
Hazard identification number (Kemler No.)	: 30
Classification code (ADR)	: F1
Hazard labels (ADR)	: 3 - Flammable liquids



Orange plates	: An orange rectangular label with a black border. It contains the number '30' in the top half and '2265' in the bottom half, both in black text.
---------------	---

Tunnel restriction code (ADR)	: D/E
Limited quantities (ADR)	: 5I
EAC	: •2Y
Excepted quantities (ADR)	: E1

#### Transport by sea

DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
MFAG-No	: 129

#### Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 60 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 220 L
Civil Aeronautics Law	: Flammable liquids

### 14.4. Environmental hazards

Other information : No supplementary information available.

### 14.5. Special precautions for user

### 14.6. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable



# N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%)

DLM-1670

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%) (2914-27-4)	
Subject to reporting requirements of United States SARA Section 313	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of United States SARA Section 302
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard

#### 15.2. International regulations

##### CANADA

N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%) (2914-27-4)
Listed on the Canadian DSL (Domestic Substances List)

##### 15.2.1. National regulations

No additional information available

#### 15.3. US State regulations

N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%)(2914-27-4)	
U.S. - California - Proposition 65 - Carcinogens List	Yes
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List

### SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

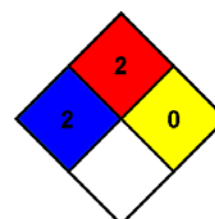
Full text of R-, H- and EUH-phrases:

Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Flam. Liq. 3	Flammable liquids Category 3
Repr. 1A	Reproductive toxicity Category 1A
H226	Flammable liquid and vapor
H312	Harmful in contact with skin
H319	Causes serious eye irritation
H332	Harmful if inhaled
H360	May damage fertility or the unborn child
R10	Flammable
R20/21	Harmful by inhalation and in contact with skin
R36	Irritating to eyes
R60	May impair fertility
R61	May cause harm to the unborn child
Xi	Irritant
Xn	Harmful

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



# N,N-DIMETHYLFORMAMIDE (FORMYL-D, 98-99%) DLM-1670

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

---

### HMIS III Rating

Health	: 2 Moderate Hazard - Temporary or minor injury may occur
Flammability	: 2 Moderate Hazard
Physical	: 0 Minimal Hazard

CIL Multi-Solvent Mixture SDS

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*